

I. AMENDMENTS

AMENDMENTS TO THE CLAIMS

Cancel claims 19, 23, and 24 without prejudice to renewal.

Please enter the amendments to claims 1, 6, 8-11, 14, 16, 17, 22, and 25, as shown below.

Please enter new claim 26, as shown below.

1. **(Currently amended)** A recombinant Modified Vaccinia Vaccine Ankara (MVA) virus comprising at least one nucleic acid coding for [[a]] at least one fragment of a *Plasmodium falciparum* merozoite surface protein-1 (MSP-1) protein or a fragment or mutein thereof, wherein the at least one fragment of MSP-1 is selected from:

- i) p42;
- ii) p42 and p38; and
- iii) p83, p30, p42, and p38

~~the fragments p83, p30, p38, p33, p19, and p42, or a combination thereof, wherein the mutein comprises an amino acid sequence that differs from the MSP-1 amino acid sequence by addition, deletion, insertion, inversion, and/or substitution of one or more amino acids, and wherein the nucleic acid coding for MSP-1 is reduced in its adenine and thymine (AT) content compared to the wild type sequence.~~

2. (Previously presented) The recombinant MVA virus according to Claim 1, wherein the MSP-1 protein is the MSP-1 protein of the isolate 3D7 or the MSP-1 protein of the FCB1 strain.

3.-5. (Cancelled)

6. **(Currently amended)** The recombinant MVA virus according to Claim 1, wherein the nucleic acid coding for the at least one fragment of MSP-1 is under the control of a promoter.

7. (Previously presented) The recombinant MVA virus according to Claim 1, wherein the nucleic acid at the 5' end is fused with a nucleotide sequence coding for a signal peptide sequence.

8. **(Currently amended)** The recombinant MVA virus according to Claim 7, wherein the signal peptide sequence controls the secretion of the at least one fragment of MSP-1 gene product.

9. **(Currently amended)** The recombinant MVA virus according to Claim 7, wherein the signal peptide sequence controls the localisation of the at least one fragment of MSP-1 gene product to the membrane.

10. **(Currently amended)** The recombinant MVA virus according to Claim 7, wherein the signal sequence controls the glycosylphosphatidylinositol anchoring of the at least one fragment of MSP-1 gene product.

11. **(Currently amended)** A method of production of a recombinant Modified Vaccinia Vaccine Ankara (MVA)-based virus, wherein the method comprises the steps:

a) transfecting a eukaryotic host cell with a transfer vector, wherein [[i]] the transfer vector comprises a nucleic acid encoding [[a]] at least one fragment of *Plasmodium falciparum* merozoite surface protein-1 (MSP-1) protein, or a fragment or a mutein thereof, wherein the at least one fragment of MSP-1 is selected from:

- i) p42;
- ii) p42 and p38; and
- iii) p83, p30, p42, and p38,

~~the fragments p83, p30, p38, p19, and p42, or a combination thereof, wherein the mutein differs by the addition, deletion, insertion, inversion and / or substitution of one or more amino acids from the MSP-1 sequence, and wherein the nucleic acid coding for MSP-1 is reduced in its adenine and thymine (AT) content compared to the wild type sequence; wherein [[ii]] the nucleic acid according to i) is flanked by MVA sequences 5' and / or 3', wherein the sequences are suitable for the homologous recombination in the host cell;~~

- b) infecting the cell from step (a) with a virus based on MVA;
- c) cultivating the host cell under conditions suitable for homologous recombination; and
- d) isolating the recombinant MVA-based virus.

12. (Previously presented) The method according to Claim 11, wherein the recombinant virus is isolated from the culture supernatant or from the cultivated host cells.

13. (Previously presented) A vaccine comprising:

- a) the recombinant virus according to one of Claims 1, 2, and 6-9; and
- b) a pharmacologically compatible carrier.

14. **(Currently amended)** The vaccine according to Claim 13, further comprising: c) MSP-1, or a fragment ~~or a mutein~~ thereof and / or a nucleic acid coding for MSP-1, or a fragment ~~or mutein~~ thereof.

15. (Previously presented) The vaccine according to Claim 14, wherein the constituents a) and c) can be administered simultaneously, sequentially or separately.

16. **(Currently amended)** A method for the ~~prophylaxis and / or~~ therapy of malaria, the method comprising administering the recombinant virus of any one of Claims 1, 2, and 6-9.

17. **(Currently amended)** A method for the ~~prophylaxis and / or~~ therapy of malaria, the method comprising administering: i) a recombinant virus according to one of claims 1, 2, and 6-9 [[6-8]]; and ii) MSP-1, or a fragment ~~or a mutein thereof~~ and / or a nucleic acid coding for MSP-1, or a fragment ~~or mutein~~ thereof, wherein the fragment of MSP-1 is selected from the fragments p83, p30, p38, p33, p19, and p42, or a combination thereof, ~~and wherein the mutein comprises an amino acid sequence that differs from the MSP-1 amino acid sequence by addition, deletion, insertion, inversion, and/or substitution of one or more amino acids.~~

18. (Previously presented) The method of claim 11, wherein the transfer vector comprises a selection marker.

19. **(Cancelled)**

20. (Previously presented) The vaccine of claim 13, wherein the vaccine does not comprise an adjuvant.

21. (Previously presented) The vaccine of claim 13, further comprising a recombinant MSP-1 protein.

22. **(Currently amended)** A vaccine composition comprising:

a) a recombinant Modified Vaccinia Vaccine Ankara (MVA) virus comprising at least one nucleic acid coding for [[a]] at least one fragment of a *Plasmodium falciparum* merozoite surface protein-1 (MSP-1) protein, or a fragment or mutein thereof, wherein the at least one fragment is selected from:

i) p42;

ii) p42 and p38; and

iii) p83, p30, p42, and p38; and

b) a pharmacologically compatible carrier, ~~wherein the vaccine does not comprise an adjuvant.~~

23.-24. **(Cancelled)**

25. (Currently amended) The vaccine composition of claim 22, wherein the nucleic acid encoding the at least one MSP-1 [[or a]] fragment ~~or mutein thereof~~ is reduced in its adenine and thymine (AT) content compared to the wild-type sequence.

26. (New) The recombinant MVA virus of claim 1, wherein the nucleic acid coding for the at least one fragment of MSP-1 is reduced in its adenine and thymine (AT) content compared to the wild type sequence.